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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/533,678	03/23/2000	Masami Hatori	Q56799	1082

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EXAMINER

NGUYEN, TUAN M

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/533,678

Applicant(s)

HATORI, MASAMI

Examiner

Tuan M Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-19 are narrative, confusing, vague and indefinite.

For example claims 1 and 12, the claims recite a semiconductor laser module comprising an optical wavelength conversion element which is formed **such that on a ferroelectric crystal substrate** having a non-linear **optical effect**. It is not clear what **such that** and **optical effect** meant in the claims. Further the claims recite a TE mode optical waveguide which extend along **a substrate surface** and in which a polarization direction is parallel to **the substrate** is formed and a **domain inversion portion**, where a spontaneous polarization direction of **the substrate** is inverted, is periodically formed in the optical waveguide, and the optical wavelength conversion element converts a **wavelength of a fundamental wave** which propagates in the optical waveguide in a direction along which the domain inversion portion are aligned. The claims recite **the substrate** twice but the claims fail to specify whether the substrate is refer to **a ferroelectric crystal substrate** or to **a substrate**. The claims also fail to specify **a domain**

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inversion portion and a wavelength of a fundamental wave. Furthermore the claims recite a semiconductor laser which can emit a laser beam in the TE mode in which a polarization direction is parallel to **the substrate**. It is not clear which substrate is referring to, which render the claims confusing, vague and infinite. Claim 12 also recites forming an optical wavelength conversion element which is formed such that on a ferroelectric crystal substrate having a **non-linear optical effect** and **periodically formed in the optical waveguide**. The claim fail to specify how to forming a non-linear optical effect and optical waveguide. The claim also recites **a polarization direction** more than twice in the claimed. It is not clear whether they are the same **a polarization direction** or the different **a polarization direction**, the claim should clearly define such as a first polarization direction, a second polarization and so on Finally claim 12 recites wherein **a plane** perpendicular to a propagation direction of the fundamental wave. The claim fail to define **a plane** which render the claim narrative of the invention, confusing, vague and indefinite.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-19 are rejected under 35 U.S.C. 102(a) as being anticipated by Kitaoka et al (US patent 6,327,289).

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With respect to claims 1 and 12, Kitaoka et al disclose an optical wavelength conversion element (11) which is formed such that on a ferroelectric crystal substrate (125) having a non-linear optical effect, a TE optical waveguide which extends along a substrate surface and in which a polarization direction is parallel to the substrate is formed, and a domain inversion portion (127), where a spontaneous polarization direction of the substrate is inverted, is periodically formed in the optical waveguide, and the optical wavelength conversion element (11) converts a wavelength of a fundamental wave which propagates in the optical waveguide in a direction along which the domain inversion portion (127) are aligned; and a semiconductor laser (1) which can emit a laser beam in the TE mode in which a polarization direction is parallel to the substrate and which can adjust a center wavelength of stimulated emission of the laser beam, and light emitted from the semiconductor laser is made to enter the optical waveguide; where said optical wavelength conversion element and said semiconductor laser are mounted such that the polarization directions of the TE mode coincide with each other and a light exit portion of the semiconductor laser and a light entrance portion of the optical wavelength conversion element (11) coincide with each other, note col. 1 line 24 to col. 11 line 5, see fig. 4.

With respect to claims 2-6, Kitaoka et al discloses the spontaneous polarization direction of said substrate forms a predetermine angle with respect to the substrate surface in a plane perpendicular to a propagation direction of the fundamental wave, note col. 3.

With respect to claim 7, Kitaoka et al discloses semiconductor (110) makes the center wavelength of stimulated emission of the laser beam coincide with a phase matching wavelength

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of the optical wavelength conversion element (116), note col. 2 line 13 to col. 8 line 24, see fig. 1.

With respect to claims 8-11, Kitaoka et al show in figure (4 A,B) a semiconductor laser (1), a ferroelectric crystal substrate (125) an optical wavelength conversion element (11), an SiO₂ thin film (16), note cols. 9-10.

With respect to claims 13-14, figure 22 show mounting the optical wavelength conversion element (504) to said flat surface of said substrate (501), the semiconductor laser (502) mounting to the stepped surface, note col. 26 line 64 to col. 29 line 26.

With respect to claim 15, figure 15 show a proton exchange optical waveguide (209), an optical waveguide element (204), a semiconductor laser chip (203) are fixing in the substrate (201), note col. 21.

With respect to claims 16-18, Kitaoka et al discloses the predetermined angle of the domain inversion region, note col. 3.

With respect to claim 19, figure 3 show the upper electrode (15a) and lower electrode (15b).

Response to Arguments

4. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

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Citation Of The Pertinent References

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Yamamoto et al (US patent 6,496,299) discloses method for stabilizing output of higher harmonic waves and short wavelength laser beam source using the same.

The patent to Kitaoka et al (US patent 6,298,075) discloses optical apparatus and method for producing the same.

The patent to Kitaoka et al (US patent 6,261,858) discloses wavelength variable semiconductor laser optical integrated device utilizing the same and production method thereof.


Communication Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247.

The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.


Paul Ip
SPE
Art unit 2828

TMN
July 18, 2003